OZONE EXCEPTIONAL EVENTS CURRENT ACTIVITIES ARB UPDATE

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OUTLINE

- March 2013 WESTAR Wildfire and Exceptional Events meeting
- 2008 Sacramento ozone exceptional events evaluation
- Coordination

WESTAR MEETING

MARCH 5 - 6, 2013

SACRAMENTO, CA

AUDIENCE AND OBJECTIVES

- Audience included land managers, state and federal air agencies, researchers
- Meeting Objectives
  - Reach common understanding of current scientific knowledge about ozone formation from wildfires
  - Identify techniques and data sources for characterizing ozone exceedances as exceptional events

TECHNICAL TOOLS DISCUSSED

- Smoke impact evaluations
- Satellite data
- Statistical evaluations
- Models
  - Global, transport, fire impacts, etc.

RESEARCH HIGHLIGHTS

- Variable ozone production from wildfires
- Combination of tools provides greater insight into wildfire impacts
- Statistical programs have role in ID & quantification of impacted concentrations
- Need accurate local level fire impact information for input to models

RESEARCH HIGHLIGHTS (CONTINUED)

- Modeling challenges:
  - Fires are highly variable emissions sources
  - Fire emissions added to regional emissions
  - Complex terrain influences transport
- Assessments are complex
  - Recognize strengths and weaknesses of various tools
  - Explain analyses and results in simple understandable terms

ADDITIONAL DISCUSSION

- Fires generate precursors that can lead to higher ozone
- Maximum ozone impact may be downwind of fire
- Smoke does not necessarily equate to ozone
- Challenge is quantifying fire contribution

U.S. EPA PERSPECTIVE

- Recognize need for flexibility in approach
- Most important elements of exceptional events demonstration are “clear causal” relationship and “but for” analysis
- Proceeding with exceptional events rulemaking and ozone guidance

AIR AGENCIES PERSPECTIVE

- Clear path for approval of ozone wildfire demonstrations is high priority
- Keeping pace with latest research and emerging technical tools is a challenge
- Resources for developing complex demonstrations are very limited
- Need consistency among U.S. EPA regional offices

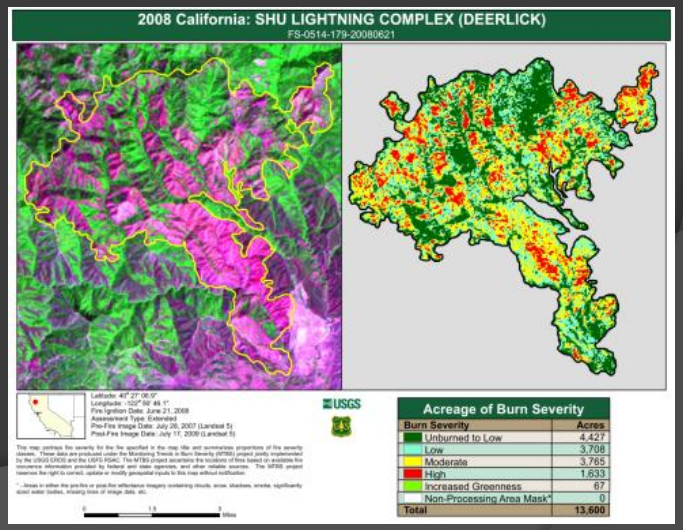
2008 SACRAMENTO OZONE EXCEPTIONAL EVENT

SCOPE OF EVALUATION

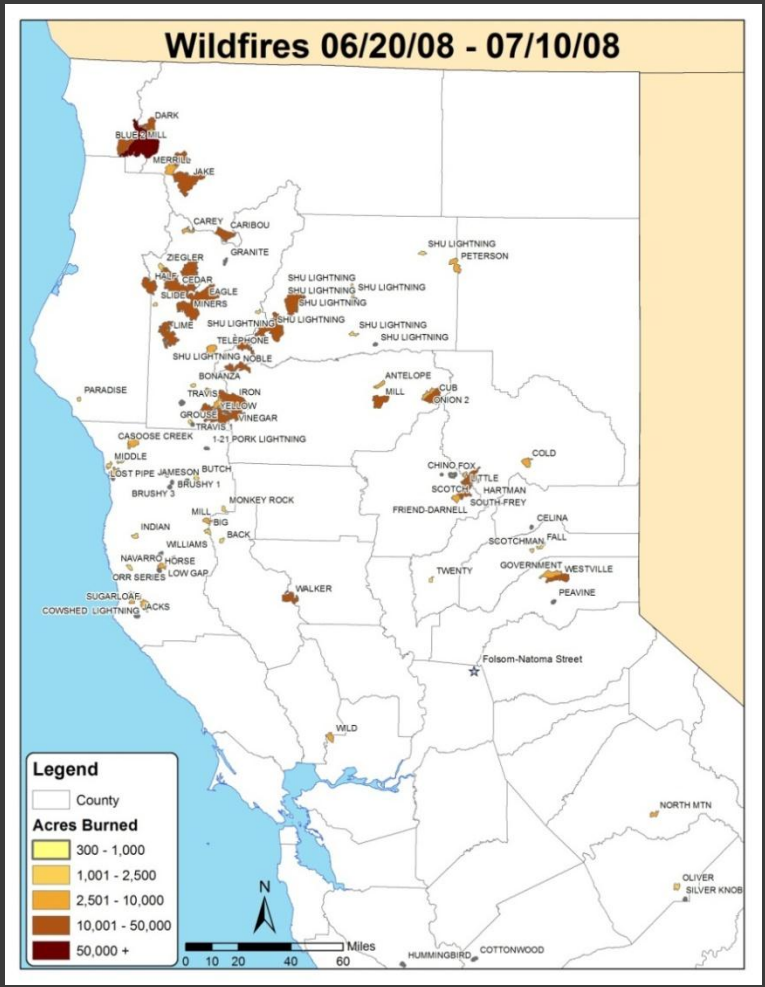
- First approved ozone exceptional event
- Impacted 1-hour ozone attainment status
- Comprehensive multi-faceted analyses for three individual fire days
  - Location, magnitude, and duration of fires
  - Meteorology and transport patterns
  - Satellite-derived products
  - Spatial pattern and timing of exceedances
  - Correlations between fire-related pollutants

USEFUL TOOLS

- Example: Active Fire Mapping Program
  - USDA Forest Service
  - Links to multiple data sources and products
  - Drill down for more detail



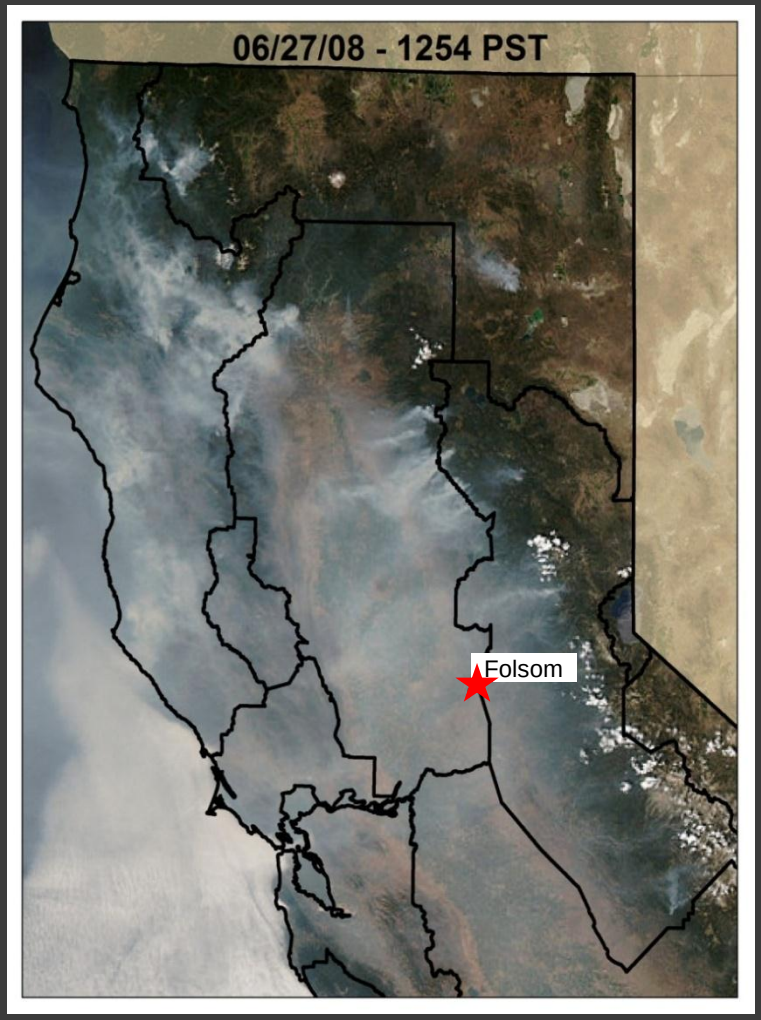
EXTENT OF WILDFIRES



- 2008 wildfires
  - June 20 to July 10
  - Lightning strikes
- Used online GIS fire outline files
- Reflects spatial extent of fire activity

Mapped using data from http://frap.cdf.ca.gov/data/frapgisdata/statewide/fire_perimeter_download.html

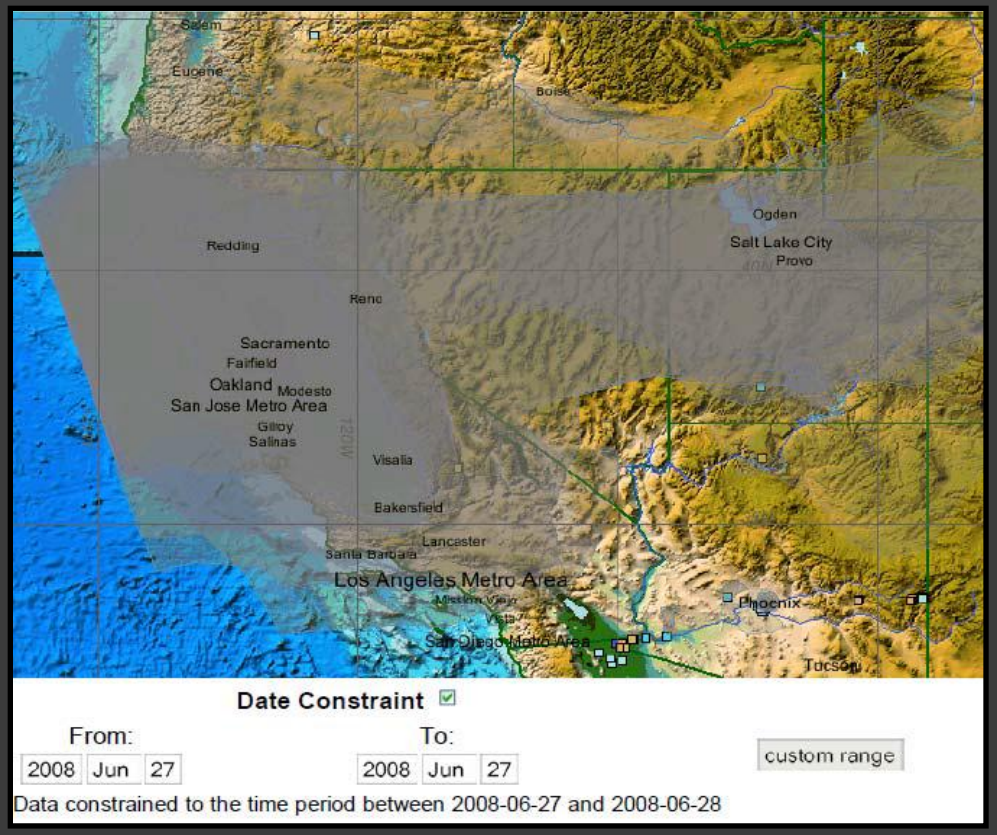
SATELLITE IMAGERY



- Daily images
- Good indication of area impacted by fire emissions
- May not be best indicator of high ozone concentrations

http://rapidfire.sci.gsfc.nasa.gov/subsets/?subset=USA1

FIRE SUMMARIES



http://www.noaa.gov

- NOAA satellite fire detection
- Verifies spatial extent
- Combine with daily fire reports to infer severity of smoke impact

MEDIA INFORMATION

SPARE THE AIR

HEALTH ADVISORY NOTIFICATION

Issued by the Sacramento Metropolitan AQMD and the Air Districts of the Sacramento Region

TODAY'S DATE/TIME: **July 7, 2008 5:30 p.m.**

A Health Advisory is in effect for high ozone levels from 5:30 until 8:00 p.m. July 7, 2008, in the Sacramento region.

In addition, particle pollution from wildfire smoke is currently unhealthy in many areas.

During this period of unhealthy air, outdoor exposure should be avoided.

For more information, and to view current conditions, visit SpareTheAir.com.

- News reports and health advisories
- Severity, location, and spatial extent
- Verifies ground-level impact
- Can infer something about management

COORDINATION

CHALLENGES

- Developing acceptable documentation package
- Accessing information from numerous sources
- Fires generally occur during high ozone season
- Documentation becomes more challenging as national standard is lowered

TIMING AND PROCESS

- Data flagged by July 1 following year
- Up to 3 years to submit documentation package
- NPS ozone data important in California
  - Potential to impact attainment status
- Accessing information several years after event can be difficult

CHARACTERIZATION OF FIRES

- Demonstration must characterize evolution of fire
- Summarize suppression actions
- If allowed to burn, need to reference applicable resource management plan
- Visual displays critical to demonstration
  - Maps, satellite images, model outputs

WORKING TOGETHER

- Ongoing communication among stakeholders
- Communicate process for flagging NPS ozone data
- Annual debrief of fire events
  - Share fire evaluation information
- Establish common platform for sharing and storing information